

December 16, 1991

To: Permit Lead

From: Tony Gallegos, Reclamation Engineer *adg*

Re: Review of Letters of Response: September 13, 1991, October 29, 1991 and October 16, 1991, (BLM-POO); Hecla Mining Company, Escalante Silver Mine, Mill Tailings Facility Reclamation Plan, M/021/004, Iron County, Utah

I have reviewed the three documents listed above which Hecla provided in response to the Division review letters of April 29, 1991, and August 23, 1991. I used the Division letters as a guideline for my review and did not refer or review the original Hecla submission. There may be some points I bring up below which were previously decided upon at the Division meeting(s) with Hecla which I did not attend.

Hecla offered no comment on the adequacy/inadequacy of the \$5,000 line item for equipment and structural removal at the mine. This would lead to the assumption that this figure is acceptable.

Hecla does not have any specifications for the compaction or wetting of the clay materials to be used in capping the tailings. The reason for this is that Hecla is still evaluating the clay materials which may be used. A minimum/maximum permeability value may be acceptable, along with specifications for percentage of optimum wetting(?).

No information regarding the amount of topsoil currently stockpiled was provided in these submissions by Hecla.

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Hecla was unable to respond to the question regarding the possible additions of mulch or fertilizer to the topsoil, because they are still identifying the topsoil resources.

The original Division reclamation cost estimate included 120 acres of disturbance associated with borrow areas. From Table 1 of the October 16 BLM-POO, the estimated disturbance to provide adequate clay for the cap would now be approximately 138 acres. This figure was arrived at by adding area 12 to the 73.9 acres made up of areas 18, 18-19, 19 and 3, and then interpolating a cubic-yard-per-acre-of-disturbance value for area 5 and adding in that acreage.

Hecla proposes to monitor the groundwater on a quarterly basis instead of monthly, but will monitor the site for a total of four years. This proposal is acceptable.

Hecla proposed a \$557,000 surety in their Oct. 29, 1991

response. Their figure was arrived at by adjusting the Division estimate for the revised groundwater monitoring costs. The Division estimate will also need to be adjusted for the change in acreage associated with the borrow areas from 120 to 138 acres. This brings the total disturbed area estimate to 220 acres. In addition, an adjustment to the estimate for fence monitoring should be made to reflect a quarterly inspection instead of monthly. According to my figures, these adjustments require a net increase in the Division surety estimate (copy attached) giving a new total of \$575,000 in 1996 dollars.

# RECLAMATION ESTIMATE

Hecla Mining Company

Escalante Silver Mine – Mill Tailings Facility

Iron County

M/021/004

last revision

12/20/91

Prepared by Utah State Division of Oil, Gas & Mining

## Reclamation Details

- All structures and equipment to be removed from the site (1.5 acre EST)
- Tailings covered by: 6" clay, 14" subsoil, 4" topsoil (65 acres)
- Hay incorporated into tailings subsoil & topsoil caps(2-3,000 lb/acre)
- Road to tailings reduced via ripping & seeding(5,800' x 12' = 1.6 acre)
- Impoundment runoff ditch constructed around tailings cap (7,200')
- Borrow areas ripped, topsoiled & seeded (ESTIMATED 138 acres)
- Roads to borrow areas ripped, water barred & seeded (1 acre EST)
- Rip topsoil stockpile area & drill seed (9 acre ESTIMATE)
- Monitor groundwater wells for 4 years after reclamation(quarterly)
- Fence maintenance for 3 years (7,900 ft long, quarterly)
- Areas revegetated via drill seeding unless impractical(=>hand seeding)
- Disturbed acreage = office+tailings+borrow+roads+stockpile= 216

Description	Amount	\$/Unit	Cost-\$
-Structure demolition/removal	lump sum	5,000	5,000
-Tailings clay cap	52,433 CY	2.92	153,104
-Tailings subsoil cap	122,344 CY	1.42	173,728
-Tailings topsoil cap	34,955 CY	1.93	67,463
-Disc hay into tailings soils	65 acre	357	23,205
-Ripping tailings road (0.40 mph)	1.6 acre	603	965
-Runoff ditch construction	7,200 ft	0.32	2,304
-Ripping borrow areas (0.60 mph)	138 acre	407	56,166
-Ripping borrow roads(0.50 mph)	1 acre	485	485
-Rip topsoil stockpile area	9.0 acre	407	3,663
-Reseed all disturbed areas	216 acre	330	71,280
-Monitor groundwater wells	4 yr	1,200	4,800
-Fence maintenance	3 yr	400	1,200
SUBTOTAL			486,084
+ 10% CONTINGENCY			48,608
SUBTOTAL			534,692
+ 5 yr ESCALATION(1.45%)			39,906
TOTAL			574,598
ROUNDED TOTAL IN 1996-\$			\$575,000
Average cost per acre = 2,662 \$/acre			

most recent  
est.